

We claim:

1. A method for forming deep trenches in a semiconductor substrate, the method comprising:

5 providing a semiconductor substrate;

forming a pad oxide layer on the semiconductor substrate;

forming a pad nitride layer on the pad oxide layer;

forming a borophosphosilicate glass layer on the pad nitride

layer;

10 forming a borosilicate glass layer on the
borophosphosilicate glass layer; and

forming deep trenches through the borosilicate glass layer, the borophosphosilicate glass layer, the pad nitride layer, the pad oxide layer, and into the semiconductor substrate.

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2. The method according to Claim 1, further comprising performing an annealing process between the steps of forming the borosilicate glass layer and the deep trenches.

20 3. The method according to Claim 1, further comprising utilization of vapor of hydrogen fluoride to etch the borosilicate glass layer and the borophosphosilicate glass in an anisotropic manner.

4. A structure for forming deep trenches in a semiconductor substrate, the

structure comprising:

a semiconductor substrate;

a pad oxide layer on the semiconductor substrate;

a pad nitride layer on the pad oxide layer;

5 a borophosphosilicate glass layer on the pad nitride layer;

and

a borosilicate glass layer on the borophosphosilicate glass
layer.